**Biology 312 - Ecology**

**Population Growth Assignment**

A study was conducted on a population of snowshoe hares in Algonquin Provincial Park, Ontario, Canada. Micro-transmitters were inserted in month-old hares and their activities monitored on a monthly basis. Below is a summary of the data for the hares that were tagged (60 individuals). For simplicity, the monthly data has been summed into yearly totals.

*Survival*: 60 were alive at the start of the experiment (year = 0), 20 at the start of the next year (year = 1), 8 at year 2, 1 at year three, and 0 at year 4.

*Fecundity*: During year 0, no babies were produced; year 1 – females produced an average of 2 female babies each; year 2 – 4 female babies each; and year 3 – 2 female babies each.

Potentially useful equations:

λ=Nt+1/Nt T=∑(xlxmx)/ Ro

Ro=∑lxmx r = (ln Ro)/T

dN/dt = rmaxN(1-N/K) Nt=N0ert

1. Complete the life table below for the population of snowshoe hares studied.



1. What is the Net Reproductive Rate for this population?
2. Is this population of snowshoe hares growing, declining, or staying the same? How do you know?
3. What is the average Generation Time for this population
4. What would the population of snowshoe hares in the park be in 25 years (assuming resources are unlimited, r is constant, and no immigration/emigration)?
5. Assume this study was conducted because park managers were concerned that the Snowshoe Hare population was becoming threatened or endangered. Based on the results of the study, what could the managers conclude about the status of the snowshoe hare population?